## (19) World Intellectual Property Organization International Bureau



## Rec'd PCT/PTO 17 DEC 2004

(43) International Publication Date 31 December 2003 (31.12.2003)

PCT

## (10) International Publication Number WO 2004/001126 A1

(51) International Patent Classification<sup>7</sup>: 1/00, 7/00

D21G 9/00,

(21) International Application Number:

PCT/F12003/000482

(22) International Filing Date: 16 June 2003 (16.06.2003)

(25) Filing Language:

Finnish

(26) Publication Language:

English

(30) Priority Data:

20021200

19 June 2002 (19.06.2002) F

(71) Applicant (for all designated States except US): METSO PAPER, INC. [FI/FI]; Fabianinkatu 9 A, FIN-00130 Helsinki (FI).

(72) Inventors; and

(75) Inventors/Applicants (for US only): HEIKKINEN, Antti

X) [FI/FI]; Kyösti Kalliontie 10-C 23, FfN-00570 Heisinki (FI). KUOSA, Harri-FI/FI]; Kuusaankuja 8, FIN-04430 Järvenpää (FI). LINNONMAA, Pekka [FI/FI]; Sipoontie 6 as 3, FIN-04400 Järvenpää (FI). LÄTTI, Hannu [FI/FI]; Kuskitio 30-C 5, FIN-0400 Järvenpää (FI). ŽVVTSÖ

XX) Kuskitie 30 C 5, FIN-04400 Järvenpää (FI). KYYTSÖ, NEN, Markku [FI/FI]; Jokivarrentie 141, FIN-04660

x) Rantakiventie 7 A 2, FI-00960 tielsinki

xx) Korpikontiontie 1 C44, F1-01450 Vantag

Numminen (FI). JAAKKOLA, Markko [FI/FI]; Vehkatie 28 C7, FIN-04400 Järvenpää (FI).

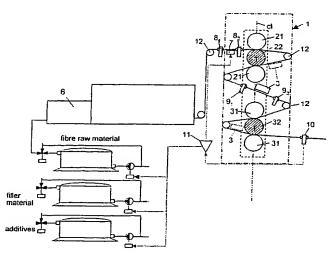
(74) Agent: FORSSÉN & SALOMAA OY; Eerikinkatu 2, FIN-00100 Helsinki (FI).

(81) Designated States (national): AE, AG, AL, AM, AT (utility model), AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (utility model), DE, DK (utility model), DK, DM, DZ, EC, EE (utility model), EE, ES, FI (utility model), FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK (utility model), SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: METHOD, SYSTEM AND CALENDER FOR CONTROLLING THE MOISTURE PROFILE AND/OR MOISTURE GRADIENT OF A PAPER WEB, AND A WEB



(57) Abstract: A method and a system for controlling the moisture profile and/or moisture gradient of a paper web for production of at least SC quality paper in a paper machine comprising a calender (1) which has at least two roll stacks (21, 22; 31, 32), of which at least one has at least three rolls and of which at least another one has at least five rolls, and which calender is provided with a pre-moisturizer (7) placed before the calender, in which pre-moisturizer the web is moisturized to a desired pre-moisture content M1, and with at least one intermediate moisturizer (3) arranged between two roll stacks to a desired intermediate moisture content M2 before the last roll stack (31, 32), in which the web is dried to a desired final moisture value M3. In accordance with the invention, for continuously controlling and optimizing the moisture profile and/or moisture gradient of the web, the premoisturizing W1 of the web is controlled by a control parameter of the premoisturizer (7) situated before the calender (1), which control parameter corresponds to the final moisture value M3 of the web.